

### SUPPORT FOR THE AMENDMENTS

This Amendment adds new Claim 10. Support for the amendments is found in the specification and claims as originally filed. In particular, support for Claim 10 is found in the specification at least at page 4, lines 21-25. No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 1-10 will be pending in this application. Claim 1 is independent. Claims 6-8 are withdrawn from consideration.

### REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

Although conventional steel sheets combine high strength and excellent formability, conventional steel sheets having high strength are lacking in bendability. See, e.g., specification at page 1, lines 15-16; page 1, line 26 to page 2, line 1; page 2, line 14 to page 3, line 1.

The present invention provides a TRIP steel sheet combining high strength and excellent bendability. This combination of properties is achieved by the present invention using a specific two-stage heat treatment to control the number of carbide grains to no more than 40 per 2000  $\mu\text{m}^2$  between retained austenite and ferrite in the steel sheet. See, e.g., specification at page 1, lines 4-6; page 4, line 16 to page 5, line 12; page 6, line 11 to page 8, line 4.

Claims 1, 3-5 and 9 are rejected under 35 U.S.C. § 103(a) over Japanese Patent 2000319759 ("JP-759") or Japanese Patent 2000309853 ("JP-853"). Claim 2 is rejected under 35 U.S.C. § 103(a) over JP-759 or JP-853 and further in view of European patent 1201780 ("EP-780"). Claims 1 and 4-5 are rejected under 35 U.S.C. § 103(a) over EP-780.

JP-759 discloses a steel tube capable of withstanding complicated working such as hydroforming and excellent in workability by a bending roll system. The steel tube contains 0.05 to 0.25 wt% C, 0.5 to 2.5 wt% Si, 0.5 to 3.0 wt% Mn,  $\leq 0.005$  wt% S,  $\leq 0.15$  wt% P; 0.005 to 0.10 wt% Al, containing at need 0.0002 to 0.0020 wt% Ca, with a balance of iron with inevitable impurities. The steel tube has a composite structure composed of 5 to 15% of austenite metastable at ordinary temperatures, with a balance of martensite, bainite and ferrite. JP-759 at English-language abstract.

JP-853 discloses a steel tube excellent in workability on a low-strain forming system and capable of withstanding complicated working such as hydroforming. The steel tube consists of 0.05 to 0.20 wt% C, 0.5 to 2.0 wt% Si, 0.5 to 2.5 wt% Mn,  $\leq 0.005$  wt% S,  $\leq 0.15$  wt% P; 0.005 to 0.10 wt% Al, with a balance of iron with inevitable impurities and containing, if necessary, 0.0002 to 0.0020 wt% Ca. The steel tube has a structure consisting of  $\geq 5\%$  austenite metastable at ordinary temperatures and a balance of martensite, bainite and ferrite. JP-853 at abstract.

EP-780 discloses a conventional Dual Phase (DP) steel plate having excellent burring workability and fatigue strength. The steel plate contains 0.01 to 0.3 mass% C, 0.01 to 2 mass% Si, 0.05 to 3 mass% Mn, 0.1 mass% or less of P, 0.01 mass% or less of S and 0.005 to 1 mass% of Al. The steel has a microstructure having ferrite as the main phase and martensite or retained austenite mainly as the second phase. EP-780 at abstract. The second phase may also contain bainite and pearlite. EP-780 at [0026].

However, the cited prior art is silent about carbide grains. The Office Action admits that JP-759, JP-853 and EP-780 each has no disclosure with regards to carbides. Office Action at page 3, section 4; page 4, section 10. Furthermore, the cited prior art fails to suggest the precise two-stage heat treatment of the present invention, and there is no motivation in the cited prior art to modify their respective steel manufacturing processes to

reduce the number of carbide grains. Moreover, each of JP-759, JP-853 and EP-780 is silent about the location of any carbide grains that might appear in their respective alloys. Thus, each of JP-759, JP-853 and EP-780 fails to suggest the independent Claim 1 limitation that "there exist no more than 40 carbide grains per 2000  $\mu\text{m}^2$  in the steel sheet *between the retained austenite and the ferrite*". When steel sheet does not undergo the two-stage heat treatment of the present invention, the steel sheet has more than 40 carbide grains per 2000  $\mu\text{m}^2$  and poor bendability.

Any *prima facie* case of obviousness based on the cited prior art is rebutted by the significant improvement in the combination of high strength and excellent bendability that is achieved in accordance with the present invention over independent Claim 1's critical range of "no more than 40 carbide grains per 2000  $\mu\text{m}^2$ ". See executed Declaration under 37 C.F.R. § 1.132 filed May 25, 2005. JP-759, JP-853 and EP-780, which are directed to steels having workability (and fatigue strength for EP-780), fail to suggest the combination of high strength and excellent bendability that is achieved by the present invention. As a result, any *prima facie* case of obviousness based on the cited prior art is rebutted.

Because the cited prior art fails to suggest the independent Claim 1 limitation that "there exist no more than 40 carbide grains per 2000  $\mu\text{m}^2$  in the steel sheet between the retained austenite and the ferrite", and any *prima facie* case of obviousness based on the cited prior art is rebutted, the prior art rejections should be withdrawn.

New Claim 10 is further patentably distinguishable over the cited prior art because the cited prior art fails to suggest the Claim 10 limitation that "the steel sheet is a TRIP steel sheet".

Applicants respectfully request rejoinder of product Claim 6 with product Claims 1-5 and 9-10.

Pursuant to M.P.E.P. 821.04, after independent product Claim 1 is allowed, Applicants respectfully request examination and allowance of withdrawn Claims 6-8, which include all of the limitations of product Claim 1.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

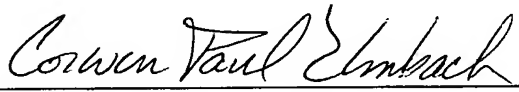
Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.  
Norman F. Oblon

Customer Number  
**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 06/04)

  
Corwin P. Umbach, Ph.D.  
Registration No. 40,211

NFO:CPU